IN THE CLAIMS

Before consideration, please cancel claims 1-20 and 44.

Claims 1-20. (Cancelled)

21. (Original) A process condition monitoring device comprising:

a substrate having a first perimeter, the substrate comprising sensors to measure the processing conditions of the substrate at different areas of the substrate; and

an electronics module having a second perimeter, the module comprising:

signal acquisition circuitry coupled to an output of the sensors;

data transmission circuitry coupled to the signal acquisition circuitry;

a power source; and

leads connecting the substrate to the electronics module for transmitting signals between the substrate and the electronics module.

22. (Original) The monitoring device of claim 21 wherein the signal acquisition circuitry is configured to amplify an output signal of the sensors.

23. (Original) The monitoring device of claim 21 wherein the data transmission circuitry comprises a micro-controller and is configured to correct the output signal using sensor calibration coefficients.

24. (Original) The monitoring device of claim 22 wherein the signal acquisition circuitry is further configured to provide an input signal to the sensors.

25. (Original) The monitoring device of claim 24 wherein the input signal comprises input power.

26. (Original) The monitoring device of claim 21 further comprising a remote data processing system, and wherein the data transmission circuitry comprises a wireless transceiver to transmit the processing conditions to the remote system.

27. (Original) The monitoring device of claim 22 wherein the data transmission circuitry comprises an analog to digital converter.

28. (Original) The monitoring device of claim 21 wherein the data transmission circuitry comprises memory, and wherein the data transmission circuitry stores processing conditions in the memory.

29. (Original) The monitoring device of claim 26 wherein the remote system is configured to adjust the output signal using calibration coefficients.

30. (Original) The monitoring device of claim 21 wherein the transceiver transmits and receives RF signals.

31. (Original) The monitoring device of claim 21 wherein the transceiver transmits and receives IR signals.

32. (Original) The monitoring device of claim 21 wherein the transceiver transmits and receives sonic signals.

33. (Original) The monitoring device of claim 21 wherein the data transmission circuitry comprises one or more connectors to couple a remote system to the device with a communications cable.

34. (Original) The monitoring device of claim 26 wherein the remote system is a microprocessor controlled device.

35. (Original) The monitoring device of claim 21 wherein the processing conditions measured by the sensors comprise one or more of the following conditions: temperature, pressure, flow rate, vibration, ion current density, ion current energy, and light energy density.

36. (Original) The monitoring device of claim 21 wherein the flexible cable is a ribbon cable.

37. (Original) A device for monitoring processing conditions to be inserted by a robot hand into a sealed chamber, the device comprising:

a first member comprising sensors;

a second member comprising electronics;

a conductive cable or conductors connecting the first and second members,

wherein the first and second members fit into or onto a robot hand or hands, and

wherein the device can be extended to a second position by the robot hand such that the first member is inside the sealed chamber and the second circular member is outside the chamber, thereby not subjecting the electronics of the second member to the conditions within the chamber.

38. (Original) The device of claim 37 wherein in the second position the cable of the device is sealed at a door of the chamber.

39. (Original) The device of claim 37 wherein the electronics comprise a power supply, and an amplifier.

40. (Original) The device of claim 39 wherein the electronics further comprise a transceiver for communicating to a data processing device.

41. (Original) The device of claim 39 wherein the electronics further comprise an analog-to-digital converter.

42. (Original) The device of claim 37 wherein the device further comprises a data processing computer coupled to the second circular member.

43. (Original) The device of claim 37 wherein the first and second members are circular or rectangular.

44. (Cancelled)

45. (Original) The process condition of claim 21 wherein in a first position the electronics module is above or below the substrate, and in a second position the electronics module and the substrate are displaced from each other such that the first and second perimeter do not intersect.